

## blueprint

Energy Efficiency Division

The New Energy Standards went into effect June 1, 2001



**M**any people have contacted us, asking if they can use the "Six Steps to an Energy Efficient Addition" booklet in order to do prescriptive calculations for additions. The new "Six Steps" booklet is currently being revised and will be coming out as soon as possible. Until this new publication is released, we recommend using the Standards Section 152 for information regarding additions.

# QUESTIONS and ANSWERS

## RESIDENTIAL

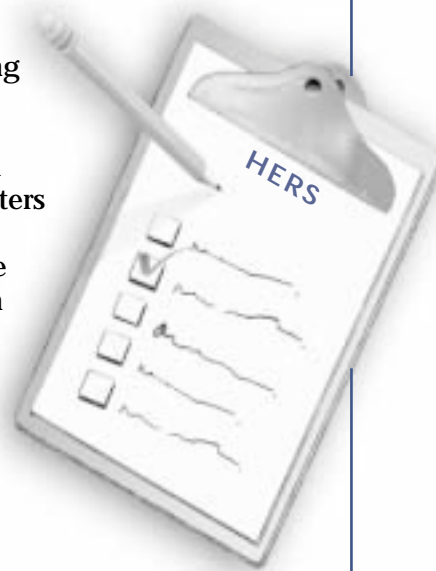


**I heard that there are conflict-of-interest requirements that HERS Raters must abide by when doing field verification and diagnostic testing. What are these requirements?**

**A** By law, HERS raters must be independent from the builder or subcontractor installer of the energy efficiency features being tested and verified. They can have no financial interest in the installation of the improvements. HERS raters can not be employees of the builder or subcontractor whose work they are verifying. Also, HERS raters cannot have financial interest in the builder's or contractor's business, nor can they advocate or recommend the use of any product or service that they are

verifying. Section 106.3.5 of the California Building Code prohibits a special inspector from being employed (by contract or other means) by the contractor who performed the work that is being inspected.

The Commission expects HERS raters to enter into a contract with the builder (not with sub-contractors) to provide independent, third party diagnostic testing and field verification. The



...continued on page 2

# QUESTIONS and ANSWERS

## RESIDENTIAL (continued)

procedures adopted by the Commission call for direct reporting of results to the builder, the HERS provider and the building official.

Although they are not recommended by the Commission, "three party contracts" are possible with builders, provided the contract delineates the responsibilities of both the HERS rater to remain independent and the sub-contractor to take corrective action if deficiencies are found. Serving as the contract administrator on such contracts, the sub-contractor may schedule, invoice and pay the HERS rater, provided the money paid by the builder to the rater can be traced through audit. It is critical, however, that these contracts preserve the rater's ability to independently complete the field verification procedures that have been adopted by the Energy Commission.

While "three party contracts" may not actually violate the requirements of the Commission, they offer a greater potential for compromising the independence of the HERS rater, since they set up a closer working relationship between the rater and the sub-contractor whose work is being inspected.

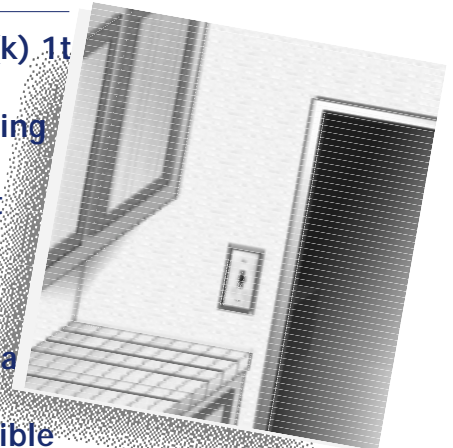
The Energy Commission has approved

the California Home Energy Efficiency Rating System (CHEERS) to certify and oversee HERS raters throughout the State. In that role, CHEERS monitors the propriety and accuracy of work completed by HERS raters and responds to any complaints received. If the independence of a rater is questioned, CHEERS scrutinizes the rater's performance to insure that the results of field verification and diagnostic tests are objective, accurate and comply with procedures adopted by the Commission.

Building officials have the authority to require HERS raters to demonstrate their competence, to the satisfaction of that building official. Therefore, in situations where the independence of a rater is in question, building officials can prohibit a particular HERS rater from being used in their jurisdiction. They can also disallow any practices they feel will compromise the independence of a HERS rater.



**Section 150 (k) 1t states that "general lighting having an efficacy of not less than 40 lumens per watt shall be controlled by a switch on a readily accessible lighting control panel at an entrance to the kitchen". Does this mean that if a kitchen has more than one entrance that only one of the entrances must have the switching for fluorescent?**



Yes. Only one entrance to a kitchen is required to have the lighting control panel for the fluorescent fixtures.



**Does the suction line to the air conditioning equipment have to meet the piping insulation requirements?**



Yes. Since the suction line is considered part of the “cooling piping” and is below 55 degrees Fahrenheit, it must be insulated. According to Table 1-T, R-3 insulation is required for piping less than 2 inches in diameter.



**If I am using package D for a residential addition of 900 square feet, can I remove a window from the previously existing wall and count that amount of glazing as credit for the room addition?**



Yes. You can take credit for glass removed in an addition as long as you are meeting the requirements of Package D. This credit is allowed for all additions less than one thousand square feet. Once your addition is greater than 1000 square feet, you can not exceed the new fenestration allowed in Alternative Package D.



**I have a home with a wood stove as the primary heat source and electric heating as the secondary source. Since I do not have any ductwork, should I model the system based upon the assumption that I have tight ducts?**



Yes. The proposed design for houses with wood heating systems is modeled the same as the standard design, so if the software does not have



**Do I have to meet the Duct Sealing, TXV, and Radiant Barrier requirements for an 88-square-foot addition if I am using the Prescriptive Compliance Approach?**



No, additions less than 100 square feet are exempt from the Duct Sealing, TXVs, and Radiant Barrier requirements when using Prescriptive Package D for compliance. If you are adding new split system HVAC equipment, you will then be meeting the definition of an alteration and will have to meet the TXV requirement.



**Is there an exemption to duct testing, a TXV, and/or Radiant Barriers if you are using Package D for prescriptive compliance for an addition greater than 100 square feet?**



No. If the addition is greater than 100 square feet and a duct is extended from the existing duct system, then there is not an exemption to meeting the Duct Sealing requirements.

The test requirements for the installation are described in the Residential Manual for Compliance with the 2001 Energy Efficiency Standards. If new space conditioning equipment is installed, then there is also no exemption from the field verification requirements for TXV or proper refrigerant charge and airflow measurements. The alternative, described in a footnote to each of the Tables 1-Z1 through 1-Z6 in Section 151 (f) of the Standards, substitutes additional energy efficiency features for the Duct Sealing and refrigerant charge and airflow or TXV features. These substitute features do not require field verification and diagnostic testing, and still provide a way to comply with the Standards. Radiant Barriers are required when using Prescriptive Package D, regardless of whether or not you are using the Alternative Components.



### What is a Radiant Barrier?

A radiant barrier is a reflective material that has an emittance of 0.05 or less and is used to reflect and inhibit the emission of radiant heat into or out of a space. In the Standards, it is primarily used to reduce the radiant transfer of heat from a hot roof to the ceiling and to ducts that are in the attic. For more information on radiant barriers, please visit our new online "Training Videos" located on our web site at [www.energy.ca.gov/title24](http://www.energy.ca.gov/title24).

**Can I replace an electric 40-gallon water heater with two electric 40-gallon water heaters and still comply with the Title 24 Standards?**

Yes. It would be considered an alteration. See section 152 of the Standards for specifications.

**How do I determine the U-factor and Solar Heat Gain Coefficient for a Bay window?**

Bay windows may either have a unit NFRC rating, an NFRC rating for the window only, or no NFRC rating.

**Can I place an open-ended fan coil in a plenum when I am building an apartment complex?**

Yes, plenums can be used to hold fan coils as long as they meet the requirements of a duct. They must be constructed of either sheet metal or ductboard, and sealed completely to avoid air leakage. Ducting the entire system is an alternative to installing a system that uses a plenum.

For windows that come with an NFRC rating for the entire unit, you should determine compliance based on the rough opening and the given information. If the unit U-factor and SHGC do not meet the package requirements, the project must show compliance using the performance approach. When using the performance approach, the area and orientation of the glazing is based on each individual window in the bay window.

Bay windows that do not come with a



rating for the entire unit but do come with insulation must comply by accounting for the performance characteristics of each component separately. Opaque portions must meet the Mandatory Measures minimum insulation requirements (i.e. R-19 ceiling, R-13 walls, R-13 floor). For prescriptive compliance, the opaque portion must meet the minimum insulation requirements of the packages for the applicable climate zone. For the windows, the U-factor and SHGC values may be determined either from an NFRC rating, or by using default values. If the window's U-factor and SHGC meet the package requirements, the bay window complies prescriptively. Bay window fenestration area is based on each individual window in the bay window.

**Do you have any suggestions as to how a plan checker can ensure that the field inspector will see special energy features for a project?**

In order to increase clarity, the plan checker could make a stamp so that the field inspector can readily identify special construction. Jurisdiction can design a stamp that we recommend contains the Mandatory Feature information. When using a stamp, remember that it does NOT replace the compliance forms. It serves the purpose of accentuating important information, but it will not serve as a substitute for the mandatory paper work. Here is a sample formatting of a stamp that you could use:

## NONRESIDENTIAL

The Standards state that lighting for theme parks is excluded from the lighting power density of the building (Section 146 (a) 5). Does this mean that all lighting within the theme park, including offices and retail shops, is excluded?

No. A theme park is a large amusement park which includes carnival rides, shows, and exhibits. Only specialty lighting within theme parks are exempt from the lighting power density calculations. All other lighting must comply with the Nonresidential Energy Efficiency Standards.

This includes, retail spaces, restrooms, restaurants, lobbies, ballrooms, theaters and other primary function areas. The treatment of these primary function areas are no different for theme parks than for other building projects. Lighting that is designed strictly for entertainment however, such as the production lighting used to present the theme of the park, may be exempted from Title 24 lighting power density compliance.

**I am building a Speculative Occupancy building. How would you recommend that I meet mechanical and lighting compliance?**



You have a couple of options. The first is to only complete the envelope portion of compliance and leave the lighting and mechanical compliance to the future tenants. If you can anticipate what type of occupancy you will have (for example, when building a strip mall you can anticipate that the tenants will be retail), you can install the lighting and/or mechanical that you expect they will need. Finally, if you are using the performance approach for compliance, use the default values for any feature that is not included in the permit. Using the complete building approach, the default value for retail lighting using complete building method would be 1.7 watts/square foot.



**To determine if an appliance is certified, can I use an industry directory like GAMA or ARI?**



Yes, but only if the appliance is listed in one of the following chapters of the following directories:

GAMA Directory of Certified Efficiency Ratings for Residential Heating and Water Heating Equipment:

Chapter 1:

Section 1: Residential Gas Central Furnaces

Section 2: Residential Oil Central Furnaces

Section 3: Residential Gas Boilers

Section 4: Residential Oil Boilers

Chapter III:

Section 1: Gas Water Heaters

Section 2: Oil Water Heaters

Section 3: Electric Water Heaters

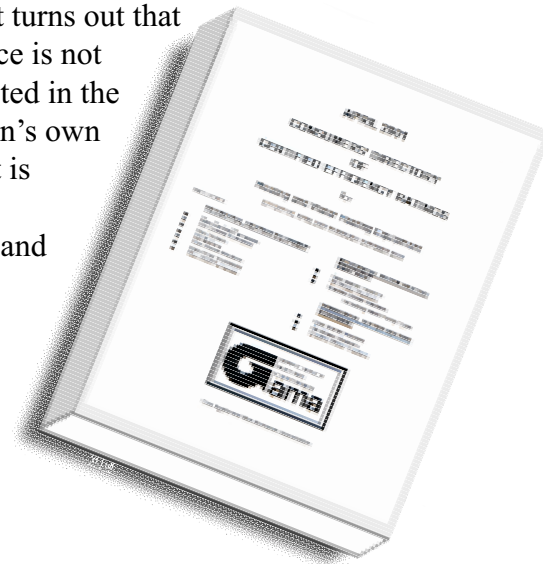
ARI (Applied Air-Conditioning Products Directory)

Sections: GSHP, GWHP, PTAC, PTHP, ULE, and WSHP only

ARI (Unitary Directory)

Also, not all manufacturers participate in the GAMA or ARI directories, so if an appliance is not listed in a GAMA or ARI directory, please check with the Commission to see if the manufacturer has certified the appliance directly to us.

Finally, if it turns out that the appliance is not properly listed in the Commission's own directory, it is considered uncertified and may not be installed.



FOR A CURRENT LIST OF **HERS RATERS**:

[http://www.cheers.org/cheers\\_raters.php](http://www.cheers.org/cheers_raters.php)  
 - note that there is an underscore between cheers and raters - Editor

For any questions or additional information relating to the new Standards contact the Energy Hotline at (800) 772-3300.

**Special Thanks:**

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## Training on 2001 AB 970 Energy Efficiency Standards

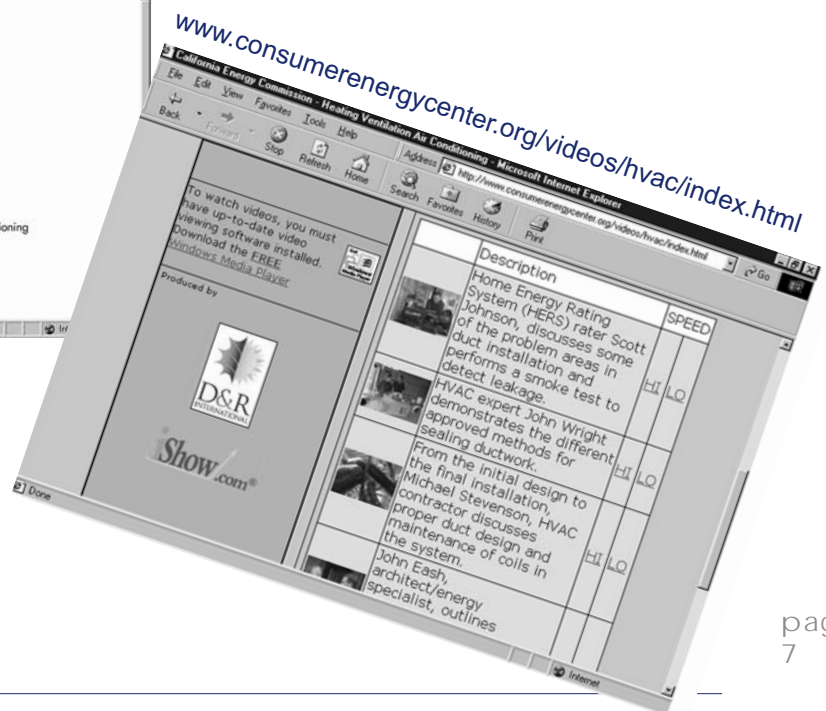
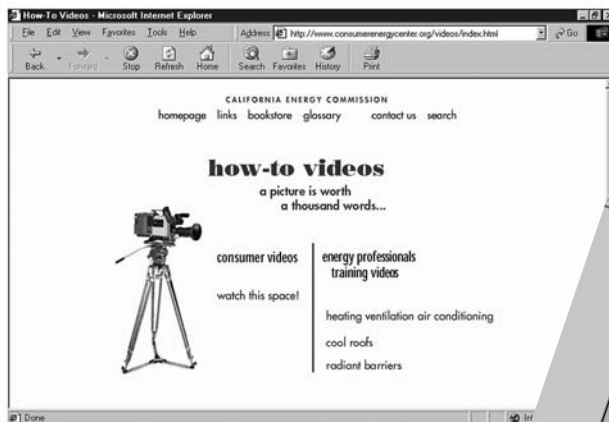
*The California Energy Commission encourages you to contact the sponsoring agency as soon as possible to obtain more information on the classes listed below. You may also call the Commission Hotline, (800) 772-3300 or (916) 654-5106. The listing provided here is based upon our most current information. Dates, topics and locations may be tentative and might vary from those shown below.*

Date	Location	Class	Contact	Co-sponsor	Telephone/e-mail/fax
10-15-01 (3days)	Stockton	CHEERS	Vicki Levy	CHEERS	1-800-424-3377 thamilton@cheers.org
10-17-01	San Diego	R	Deborah Newell		1-800-424-3377 thamilton@cheers.org
11-13-01 (4days)	Stockton	CHEERS	Vicki Levy	CHEERS	1-800-424-3377 thamilton@cheers.org
12-5-01	Los Angeles	CHEERS	Vicki Levy	CHEERS	1-800-424-3377 thamilton@cheers.org
12-6-01	Los Angeles	CHEERS	Vicki Levy	CHEERS	1-800-424-3377 thamilton@cheers.org
12-7-01	Los Angeles	CHEERS	Vicki Levy	CHEERS	1-800-424-3377 thamilton@cheers.org

Note: Potential participants must register and confirm the date, times & exact locations of classes. Most are all day classes (from 9 AM to 3 PM). Some classes are Residential (R) or Nonresidential (NR) only. Space is limited. R.S.V.P. as soon as possible. Fees may be required. Dates and locations subject to change. Instructors will be provided by the co-sponsoring utility. Thanks to BIA & ICBO for partnering with SCE on this project. California Energy Commission staff will also be available at the training site.

**Commission Contact: John Eash 916-653-7181 e-mail: jeash@energy.state.ca.us**

[www.consumerenergycenter.org/videos/index.html](http://www.consumerenergycenter.org/videos/index.html)



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[http://www.energy.ca.gov/ab970\\_standards/documents/index.html](http://www.energy.ca.gov/ab970_standards/documents/index.html)

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